

### **REMARKS/ARGUMENT**

Objected to Claims 2, 5, 10, 13 and 17 have been amended per Examiner's instructions. Accordingly, the objections are overcome.

Claims 10-20 are allowed.

Claims 2-8 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Applicants traverse this rejection for the reasons set forth below.

Independent Claim 2 requires and positively recites, a method of frequency offset compensation, said method comprising the steps of: **“receiving an input signal wherein frequency offsets have been translated to DC offsets”**, “first determining a current maximum peak value of said input signal”, “second determining a current minimum peak value of said input signal”, **“calculating an average of said current maximum peak value and said current minimum peak value to yield a DC offset estimate”** and **“subtracting said DC offset estimate from said input signal to yield a frequency compensated output signal”**, “wherein said step of determining said current maximum peak value comprises the steps of: comparing said input signal with a previous maximum peak value; if said input signal is greater than said previous maximum peak value, **adding said previous maximum peak value to a first difference between said input signal and said previous maximum peak value, said first difference multiplied by a maximum charge coefficient to yield said current maximum peak value**; and if said input signal is not greater than said previous maximum peak value, **subtracting a second difference between said previous maximum peak value and said input signal multiplied by a**

**maximum discharge coefficient from said previous maximum peak value to yield said current maximum peak value”.**

Independent Claim 5 requires and positively recites, a method of frequency offset compensation, said method comprising the steps of: “receiving an input signal **wherein frequency offsets have been translated to DC offsets**”, “first determining a current maximum peak value of said input signal”, “second determining a current minimum peak value of said input signal”, “calculating an average of said current maximum peak value and said current minimum peak value to yield a DC offset estimate” and “subtracting said DC offset estimate from said input signal to yield a frequency compensated output signal”, “wherein said step of determining said current minimum peak value comprises the steps of: comparing said input signal with a previous minimum peak value; if said input signal is not greater than said previous minimum peak value, **subtracting a first difference between said previous minimum peak value and said input signal, said first difference multiplied by a minimum discharge coefficient and subtracted from said previous minimum peak value to yield said current minimum peak value**; and if said input signal is greater than said previous minimum peak value, **adding said previous minimum peak value to a second difference between said input signal and said previous minimum peak value, said second difference multiplied by a minimum charge coefficient to yield said current minimum peak value**”.

“[w]heather a claim is drawn to patent-eligible subject matter under 35 U.S.C. § 101 is a threshold inquiry, and any claim of any claim of an application failing the requirements of § 101 must be rejected even if it meets all of the other legal requirements of patentability.” In re Bilski, 545 F.3d 943, 952 (Fed. Cir. 2008)(en banc). The Federal Circuit stated that the Supreme Court’s machine-or-transformation test is the “definite test to determine whether a process claim is tailored narrowly enough to encompass only a particular application of a fundamental principle rather than to pre-empt the principle

itself.” Id. At 954. As the Federal Circuit phrased the machine-or-transformation test in Bilski:

A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.

Id. (emphasis in original)(citing Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Diamond v. Diehr, 450 U.S. 175, 192 (1981); Parker v. Flook, 437 U.S. 584, 589 n. 9 (1978); Cochrane v. Deener, 94 U.S. 780, 788 (1876)).

The limitation “**an input signal wherein frequency offsets have been translated to DC offsets**” in independent Claims 2 & 5 represents an actual physical signal, i.e., a “concrete thing” that can be physically measured. The above input signal is NOT a “mental process”, “phenomena of nature” or “abstract intellectual concept”. Thereafter, that input signal or “concrete thing” is then transformed into a different state or thing by the step “**subtracting said DC offset estimate from said input signal to yield a frequency compensated output signal**”, represents a transformation of the “input signal” into “a frequency compensated output signal” - which is a transformation of a concrete thing from one state to a different state or thing, which complies with “or (2) it transforms a particular article into a different state or thing”, as set forth in Bilski. In addition to the above, Applicants respectfully submit that Claim 1 further complies with “(1) it is tied to a particular machine or apparatus”, as set forth in Bilski, because a machine or apparatus would be required to perform the steps of “**receiving an input signal wherein frequency offsets have been translated to DC offsets**” and “**subtracting said DC offset estimate from said input signal to yield a frequency compensated output signal**”. Accordingly, Claims 2 & 5 comply with the requirements of 35 U.S.C. § 101.

Examiner, however, makes the following two improper determinations in the most recent Office Action:

- 1) “the transformation of signal to a different state or thing is not the same as transforming a physical article or material to a different state” (OA dated 04/15/2009, page 6, lines 6-7);
- 2) “a signal itself does not have a physical embodiment but it is information data acted on” (OA dated 04/15/2009, page 6, lines 7-8).

Regarding Examiner’s determination in #1 above that, “the transformation of signal to a different state or thing is not the same as transforming a physical article or material to a different state”, Applicants respectfully point out that Examiner agrees that a “transformation of a signal to a different state or thing” is occurring in Claims 2 & 5. The only remaining question is how Examiner arrives at his further determination that “transforming a signal to a different state or this is not the same as transforming a physical article or material to a different state”? Examiner cites no scientific evidence or case law support for his determination (meaning no prima facie case supporting his determination). Indeed, Examiner’s determination is supposition not supported by fact – little more than improper hindsight reconstruction.

Regarding Examiner’s determination in #2 above that, “a signal itself does not have a physical embodiment but it is information data acted on”, Applicants again respectfully point out that Examiner cites no scientific evidence or case law support for his determination. Indeed, Examiner’s determination once again is supposition not supported by fact – little more than improper hindsight reconstruction. Examiner seems to be misconstruing the term “signal” to be nothing more than abstract “data”. Applicants respectfully point out that in the step, limitation “an input signal wherein frequency offsets have been translated to DC offsets” the “input signal” has direct current (DC) offsets. As such, the “input signal” is not, and cannot be construed to be, nothing but “data”, as determined by Examiner.

Subsequent to the above, the additional step of: **“subtracting said DC offset estimate from said input signal to yield a frequency compensated output signal”**, sets forth that the direct current (DC) offset estimate is subtracted from the “input signal” to yield a “frequency compensated output signal”. Similarly, a “frequency compensated output signal” is not, and cannot be construed to be, nothing but “data”, as determined by Examiner. Accordingly, both the “input signal” and the “frequency compensated output signal” both have physical embodiments with the “frequency compensated output signal” being the result of the “transformation of underlying subject matter (e.g., the “input signal”) to a different state or thing (e.g., the “frequency compensated output signal”). Moreover, certainly a machine of some sort would be required to subtract direct current (DC) offsets **from said input signal to yield a frequency compensated output signal**, as required by Claims 2 & 5. Accordingly, the 35 USC 101 rejection of Claims 2 & 5 is improper and must be withdrawn.

Claims 3, 4 and 8 depend from allowable Claim 2 and are similarly allowable.

Claims 6 and 7 depend from allowable Claim 5 and are similarly allowable.

An amendment after a final rejection should be entered when it will place the case either in condition for allowance or in better form for appeal. 37 C.F.R. 1.116; MPEP 714.12. This amendment places the case in condition for allowance.

Claims 10-20 stand allowed. Claims 2-8 stand allowable for the reasons set forth above. Applicants respectfully request withdrawal of the rejections and allowance of the application at the earliest possible date.

Respectfully submitted,



**Ronald O. Neerings**  
Reg. No. 34,227  
Attorney for Applicants

TEXAS INSTRUMENTS INCORPORATED  
P.O. BOX 655474, M/S 3999  
Dallas, Texas 75265  
Phone: 972/917-5299  
Fax: 972/917-4418